FAAD-STD-1328b
July 18, 1983
SUPERSEDING
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3/1/83

DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

ENGINEERING AND PRODUCTION BRANCH

FAA DEPOT STANDARD

REPAIR AND TESTING REQUIREMENTS FOR ELECTRONIC TEST EQUIPMENT

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1. SCOPE

1.1 Scope.- This standard sets forth the general requirements for the repair and testing of electronic test equipment and is used in conjunction with detailed requirements for specific equipment as stated in contract.

1.2 Definition.- The term "electronic test equipment", as used herein, shall denote electrical and electronic test equipment, instruments, and systems. Equipment includes complete unit (such as oscilloscope mainframe with plug-in), unit without subassembly (mainframe without plug-in), and subassembly (plug-in).

2. APPLICABLE DOCUMENTS

2.1 FAA Documents.- The following FAA specifications, standard, and forms, of the issue in effect on the date of the invitation for bids or request for proposals, form a part of this specification and are applicable to the extent specified herein:

FAAD-R-1139	Printed Circuit Boards
FAAD-STD-1003	Servicing Standards for Ground Equipment, Level A
FAA Form 6032-1	Airway Facilities Modification Record
AC Form 4680-2	E & R Quality Feedback Tag

2.2 Military Documents.- The following military standard, of the issue in effect on the date of the invitation for bids or request for proposals, forms a part of this specification and is applicable to the extent specified herein:

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes

2.3 Other Publications.- The instruction book applicable to the test equipment specified in the invitation for bids or request for proposals, forms a part of this standard and is applicable to the extent specified herein:

NOTE: Copies of this standard and other applicable FAA documents may be obtained from the contracting officer in the FAA office issuing the invitation for bids or request for proposals. The applicable test equipment instruction book may be obtained from the test equipment manufacturer.

2.4 Precedence.- When conflicts exist between the requirements of the contract and this standard, the contract shall take precedence. When conflicts exist between the requirements of this standard and its referenced documents, this standard shall take precedence.

3. REQUIREMENTS

3.1 General.- The electronic test equipment shall be repaired in accordance with FAAD-STD-1003 except as noted herein. All old calibration labels and seals shall be removed. All corrosion, especially battery corrosion, shall be cleaned away and damaged surfaces refinished. Damaged components shall be replaced. Handles, control knobs, etc., shall function as intended. Potentiometers and switches shall be noise-free and smooth in operation. Cathode ray tubes shall not have noticeable burn spots in the usable viewing area.

3.2 Printed Circuit Boards.- Printed circuit boards shall be serviced in accordance with FAAD-R-1139, except paragraph 3.4 is deleted, and replacement coating specified in paragraph 3.3.9 shall be equal to the coating which was removed.

3.3 Modification (Delete 3.2.5 FAAD-STD-1003).- Neither the design nor the functional capabilities of the equipment shall be modified unless authorized by the contract or detailed specification. Unauthorized modifications shall be removed and the equipment restored to its original condition.

3.4 Test Requirements.- The equipment and all its parts shall perform in accordance with design criteria, specified tolerances, and functional purpose, individually and collectively, as stated in the repair contract. Delete section 4 in FAAD-STD-1003.

3.5 Replacement Parts.- Replacement parts shall be electrically and mechanically equal and physically interchangeable with the parts to be replaced. When a proper part is not available or is uneconomically practical to obtain, the contractor shall select a substitute part suitable for the intended use and request approval to use the parts from the FAA.

3.6 AC Form 4680-2.- This form, supplied by the FAA, shall be completed and attached to each repaired equipment by the contractor prior to delivering the item to the FAA. The following information shall be entered on the form:

Blank Heading	Information
FSN (or NSN)	Equipment national supply number (NSN) which appears in the contract
Noun	Equipment manufacturer's name and part number
Date	Date equipment repair is completed
Serial Number	Serial number of equipment
Repaired by	Contractor's name
P.O. or Contract Number	Purchase Order Number

3.7 FAA Form 6031-1.- This form, supplied by FAA, shall be completed and attached to the Form 4680-2 on each equipment by the contractor. The following information shall be entered on the form:

Blank Heading	Information
Description of Item	Equipment manufacturer's name and part number
Serial Number	Serial number of equipment
FAA Type Designation	FAA type number, when assigned
Code	The letter "N"
Title or Description	The notation "N/A"

3.8 Calibration Label.- A label, supplied by the contractor, shall be affixed to the electronic test equipment to certify that it has been calibrated to meet the requirement of paragraph 3.4. The label shall be located on the front of the equipment or at a conspicuous location where it does not interfere with operation of the equipment or cover markings. The minimum information on the label shall be:

(a) Date of calibration

(b) Date due for next calibration

(c) Name of company performing calibration

(d) Serial number of the equipment

The date due for the next calibration shall be one year form the date of calibration, unless otherwise specified in the repair contract. The label shall be made of durable material that will adhere to the equipment surface and can be easily removed without marring the surface. Markings on the label shall be legible and permanent. Labels from previous calibrations shall be removed.

3.9 Calibration Seal.- After repair and testing of the electronic test equipment, a seal (or seals) supplied by the contractor shall be affixed to the equipment in such a manner that it will be broken when access is gained to the internal parts of the equipment. The seal shall be the non-reusable type to prevent reuse after it is removed or broken. The seal shall be printed with legible and permanent legend to indicate that the equipment calibration is void if the seal is broken. All seals from previous servicing shall be removed.

4. QUALITY ASSURANCE PROVISIONS

4.1 Test.- Each repaired equipment shall be tested for correct function and operation to substantiate that if conforms to paragraph 3.4.

4.2 Test Method.- The contractor shall provide the necessary test procedure and test data form required for electronic test equipment testing and recording of the test data results. If the test procedure and test data form normally used by the contractor satisfies the requirements of this standard, no new form will be required.

4.2.1 Test Procedure.- The test procedure shall be in sufficient detail to show compliance with the requirements of paragraph 3.4. These procedures shall be devised to show this compliance without the need to break the calibration seal. That is, these tests will be "front panel" or " in cabinet" type tests. These procedures shall identify the test equipment to be used and provide a step-by-step description of the test setup. A preliminary inspection shall be included to cover workmanship, cleanliness, etc.

The procedures shall include a detailed step-by-step performance check of the repaired item. If the equipment instruction manual performance checks are to be followed, the copyright date, title, and appropriate paragraph numbers may be referenced instead of copying the existing document. These procedures may be the contractor's established procedure, the equipment manual, handbook, or similar document provided all requirements are met. A final checklist should supplement the contractor's test procedure to insure that all administrative details are accomplished. See Appendix II for a sample checklist.

4.2.2 Test Data Form.- A test data form shall be completed for each item repaired. This form shall show in the heading the following information:

(a) Equipment Name

(b) National Stock Number

(c) Serial Number

(d) Government Purchase Order Number

The form shall be dated and signed by the contractor's test person. It shall follow the sequence of the test procedures described above, and indicate the test results in clear and concise manner. See Appendix I for a sample test data form.

4.3 Approval of Test Method.- A copy of the proposed test procedure and test data form shall be furnished to the government for approval prior to delivery of any repaired item. If the test procedure or test data form is from a readily available publication such as an equipment manual, reference to the applicable parts of the publication may be furnished instead of a copy.

4.4 Testing.- On all items, the contractor shall perform all the required tests utilizing the government approved test procedure, and furnish test data on the approved form. One copy of the completed test data form shall be attached to the repaired equipment.

4.5 Measuring and Test Equipment.- Measuring and test equipment shall be maintained in calibrated condition utilizing reference standards whose calibration is certified as being traceable to the National Bureau of Standards.

4.6 Inspection.- At the discretion of the FAA, inspection may be accomplished at either the repair source or at the FAA Depot and will include verification that the repaired item meets the electrical and mechanical performance parameters of this standard. Repaired equipment may be subjected to either 100 percent inspection, lot-by-lot sampling, or continuous sampling plans as determined by the FAA. In either case, the Acceptable Quality Level (AQL) will be 1.0 percent for critical defects, 2.5 percent for major defects, and 65, percent for minor defects, as defined in paragraph 2.1.1 through 2.1.3 of MIL-STD-105.

5. PREPARATION FOR DELIVERY

5.1 General.- The equipment shall be prepared for delivery as provided in the contract. Delete 5.1 FAAD-R-1139.

6. NOTES

6.1 Note on Information Items.- The contents of this section 6 are only for the information of the initiator of the procurement request and are not a part of the requirements of this standard. They are not contract requirements, nor are they binding on either the government or the contractor. In order for these items to become a part of the resulting contract, they must be specifically incorporated into the contract. Any reliance placed by the contractor on the information in these subparagraphs, is wholly at the contractor's own risk.

6.2 Intended Use.- This standard is for the small purchase repair of common and special test equipment and must be used with detailed requirements for specific equipment. Detailed requirements may be detailed specification or equipment specifications given in the equipment instruction book.

6.3 Modifications.- This standard does not cover equipment modified in accordance with Airway Facilities Publications (AFP) Modification Handbook. Detailed requirements for modification must be included in the detailed equipment specification or contract description with specific exception to paragraphs 3.3 and 3.7.

6.4 Equipment Description.- The contract or detailed specification must give a complete description of the test equipment including accessory items, detachable parts, and expendable items to be supplied with the repaired equipment. Items to be considered are test leads, probes, adapters, carrying case, detachable power cable assemblies, batteries, instruction book, and spare parts.

6.5 Instruction Book.- The instruction book for special test equipment is usually not available from the equipment manufacturer. In this case, the procurement request must specify that the government will furnish the book. This modifies the not in paragraph 2.3.

APPENDIX I

S A M P L E

TEST DATA

ITEM: MODULATION ELIMINATOR NSN 5825-00-087-3310

Type/Part No.: CA-1422 Serial Number

Contract No.: 81-B-2468

TEST

DESCRIPTION	REQUIREMENT	RESULTS
1. Residual Modulation	< 4%	_____%
2. Efficiency 15 W at TP2	TP1 > 140 watt	_____W
3. Cathode Current V1 and V2	< 60 m a	_____ma
4. Hum Modulation at TP2	No detectable 60 Hz hum	_____( )

Tested By:_____Date:

APPENDIX II

FINAL CHECKLIST

A. Apply calibration label top.

B. Apply calibration void seals.

C. Complete AC Form 4680-2 as follows:

Noun:

NOUN:

Date: As appropriate.

W.C.: Leave blank.

Serial Number: As appropriate.

Repaired By: Company name.

P.O. or Contract: As appropriate.

Voucher #: Leave blank.

Item used with: Leave blank

Do not fill out any other blanks (Form FAA use).

D. Complete FAA Form 6032-1.

E. Attach both above forms to UUT.

F. Attach completed test data form to UUT. (It is suggested that is and FAA Form 6032-1 be folded and stabled to AC Form 4680-2.)

G. Insure that packaging meets contract requirements and that it is adequate to protect UUT from shipping damage. Also, wrap UUT in protective wrap if there is a possibility of contamination from packaging materials. (Refer to contract clause #38 if FAA supplied packing is inadequate.)